Engagement Opportunities in NASA STEM 2022 (EONS-2022)
NASA Research Announcement (NRA)
MUREP PBI/HBCU Data Science Equity, Access and Priority in Research and Education
(MUREP DEAP)
Number: NNH22ZAO001N-MUREPDEAP

Title: Long-Term, High-Resolution Urban Aerosol Database for Research, Education and Outreach
Institution: Morgan State University
City/State: Baltimore, Maryland
PI: Xiaowen Li
FY: 2023

Summary: The project combines the AI/ML expertise and aerosol science research capability at Morgan State University (the lead institution) with the collaboration and support from two local universities, and subject matter experts at NASA/GSFC, to produce a targeted, no-gap, long-term, high-resolution, open-access, and user-friendly database of both the Aerosol Optical Depths and PM2.5 surface concentrations, focusing on the Baltimore-Washington area. We will use innovative data analysis algorithms, including artificial intelligence and machine learning methods, to stitch different data sources together through retrieval algorithms with quantitative error analysis. In addition to enhancing aerosol scientific research, the database will also be used in both classroom teaching and scientific outreach, accompanied by online tools and educational materials.